

Montana Board of Oil and Gas Conservation Environmental Assessment

Operator: Slawson Exploration Company, Inc.

Well Name/Number: Mace #1-22H

Location: SE SW Section 22 T20N R60E

County: Richland, MT; **Field (or Wildcat)** Wildcat

Air Quality

(possible concerns)

Long drilling time: No, 25-35 days drilling time.

Unusually deep drilling (high horsepower rig): Triple derrick rig to drill a single lateral horizontal Bakken Formation test, 14,651' MD/10,385' TVD.

Possible H₂S gas production: Possible H₂S.

In/near Class I air quality area: No Class I air quality area.

Air quality permit for flaring/venting (if productive): Yes, DEQ air quality permit required under 75-2-211.

Mitigation:

☒ Air quality permit (AQB review)

☐ Gas plants/pipelines available for sour gas

☐ Special equipment/procedures requirements

☐ Other: _____

Comments: Triple derrick drilling rig to drill a single lateral horizontal Bakken Formation test, 14,651' MD/10,385' TVD.

Water Quality

(possible concerns)

Salt/oil based mud: Yes to intermediate string hole to be drilled with oil based invert drilling fluids.

Horizontal lateral will be drilled with brine fluids. Surface casing hole will use freshwater and freshwater mud system.

High water table: No high water table anticipated.

Surface drainage leads to live water: Yes, an unnamed ephemeral tributary drainage to Shadwell Creek, about 1/16 of a mile to the southwest from this location.

Water well contamination: None, closest water wells are about 1/4 of a mile to the northwest and about 3/4 of a mile to the southwest from this location. Depth of these water wells range from 34' to 1360' and are stock and domestic water wells. This permitted well will drill surface hole with freshwater to 1588'. Will run 1588' of steel surface casing and cement it to surface.

Porous/permeable soils: No, sandy clay soils.

Class I stream drainage: No, Class I stream drainages.

Mitigation:

☒ Lined reserve pit

☒ Adequate surface casing

☐ Berms/dykes, re-routed drainage

☒ Closed mud system

☐ Off-site disposal of solids/liquids (in approved facility)

☐ Other: _____

Comments: 1588' surface casing well below freshwater zones in adjacent water wells. Also, covering Fox Hills aquifer. Adequate surface casing and BOP equipment to prevent.

Soils/Vegetation/Land Use

(possible concerns)

Steam crossings: None anticipated.

High erosion potential: Yes, location needs a moderate cut, up to 22.1' and a moderate fill, up to 21.3', required.

Loss of soil productivity: None, location to be restored after drilling well, if nonproductive. If productive unused portion of drillsite will be reclaimed.

Unusually large wellsite: No, large well site 440'X450'

Damage to improvements: Slight, surface use is grassland adjacent to cultivated fields.

Conflict with existing land use/values: Slight

Mitigation

☐ Avoid improvements (topographic tolerance)

☐ Exception location requested

☒ Stockpile topsoil

☐ Stream Crossing Permit (other agency review)

☒ Reclaim unused part of wellsite if productive

☐ Special construction methods to enhance reclamation

☒ Other: Requires DEQ General Permit for Storm Water Discharge Associated with Construction

Activity, under ARM 17.30.1102(28).

Comments: Access will be over existing county road, #354. Will construct about 1515' of new access road into this location off the existing county road. Oil based invert drilling fluids will be recycled.

Completion fluids will be trucked to a Class II disposal. Operator will utilize a closed mud system.

Cuttings and mud solids will be disposed of in the lined cuttings pit. Cuttings pit will be allowed to dry and then backfilled with subsoil clays. No concerns.

Health Hazards/Noise

(possible concerns)

Proximity to public facilities/residences: Closest residences are ¾ of a mile to the southwest and 1.1 miles to the southeast from this location.

Possibility of H2S: Possible H2S.

Size of rig/length of drilling time: Triple drilling rig 25 to 35 days drilling time.

Mitigation:

☒ Proper BOP equipment

☐ Topographic sound barriers

☐ H2S contingency and/or evacuation plan

☐ Special equipment/procedures requirements

☐ Other: _____

Comments: Adequate surface casing cemented to surface with working BOP stack should mitigate any problems.

Wildlife/recreation

(possible concerns)

Proximity to sensitive wildlife areas (DFWP identified): Little Missouri National Grasslands, about ¾ of a mile to the east in North Dakota.

Proximity to recreation sites: None identified. _____

Creation of new access to wildlife habitat: No

Conflict with game range/refuge management: No

Threatened or endangered Species: Species identified as threatened or endangered are the Pallid Sturgeon, Interior Lease Tern, Whooping Crane and Piping Plover. Candidate species are the Sprague's Pipit and the Greater Sage Grouse. NH tracker website indicates species of concern are the Grasshopper Sparrow, Meadow Jumping Mice, Sprague's Pipit, Great Blue Heron, Loggerhead Shrike, Long-billed Curlew, and Sharp-tailed grouse (Only West of the Continental Divide, East of the Continental Divide species is ranked S4 and not a species of concern).

Mitigation:

- ☐ Avoidance (topographic tolerance/exception)
- ☐ Other agency review (DFWP, federal agencies, DSL)
- ☐ Screening/fencing of pits, drillsite
- ☐ Other: _____

Comments: Private hilly surface grassland, adjacent to cultivated fields. Wellsite is not close to live water. No concerns.

Historical/Cultural/Paleontological

(possible concerns)

Proximity to known sites: None identified

Mitigation

- ☐ avoidance (topographic tolerance, location exception)
- ☐ other agency review (SHPO, DSL, federal agencies)
- ☐ Other: _____

Comments: Private surface lands. No concerns.

Social/Economic

(possible concerns)

- ☐ Substantial effect on tax base
- ☐ Create demand for new governmental services
- ☐ Population increase or relocation

Comments: No concerns.

Remarks or Special Concerns for this site

Single lateral horizontal Bakken Formation test, 14,651' MD/10,385' TVD.

Summary: Evaluation of Impacts and Cumulative effects

No long term impacts expected. Some short term impacts will occur.

I conclude that the approval of the subject Notice of Intent to Drill (does/**does not**) constitute a major action of state government significantly affecting the quality of the human environment, and (does/**does not**) require the preparation of an environmental impact statement.

Prepared by (BOGC): /s/ Steven Sasaki

(title:) Chief Field Inspector

Date: February 17, 2011

Other Persons Contacted:

Bureau of Mines and Geology, GWIC website

(Name and Agency)

Water wells in Richland County, Montana

(subject discussed)

February 17, 2011

(date)

US Fish and Wildlife, Region 6 website

(Name and Agency)

ENDANGERED, THREATENED, PROPOSED AND CANDIDATE SPECIES MONTANA
COUNTIES, Richland County

(subject discussed)

February 17, 2011

(date)

Montana Natural Heritage Program Website

(Name and Agency)

Heritage State Rank= S1, S2, S3 T20N R60E

(subject discussed)

February 17, 2011

(date)

If location was inspected before permit approval:

Inspection date: _____

Inspector: _____

Others present during inspection: _____